

**VIRTUAL PRIVATE NETWORK (VPN) WITH CHANNELIZED
ETHERNET OVER SONET (EoS) INTERFACE AND METHOD**

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Serial No.: 10/656,702
Attorney's Docket: 064731.0389

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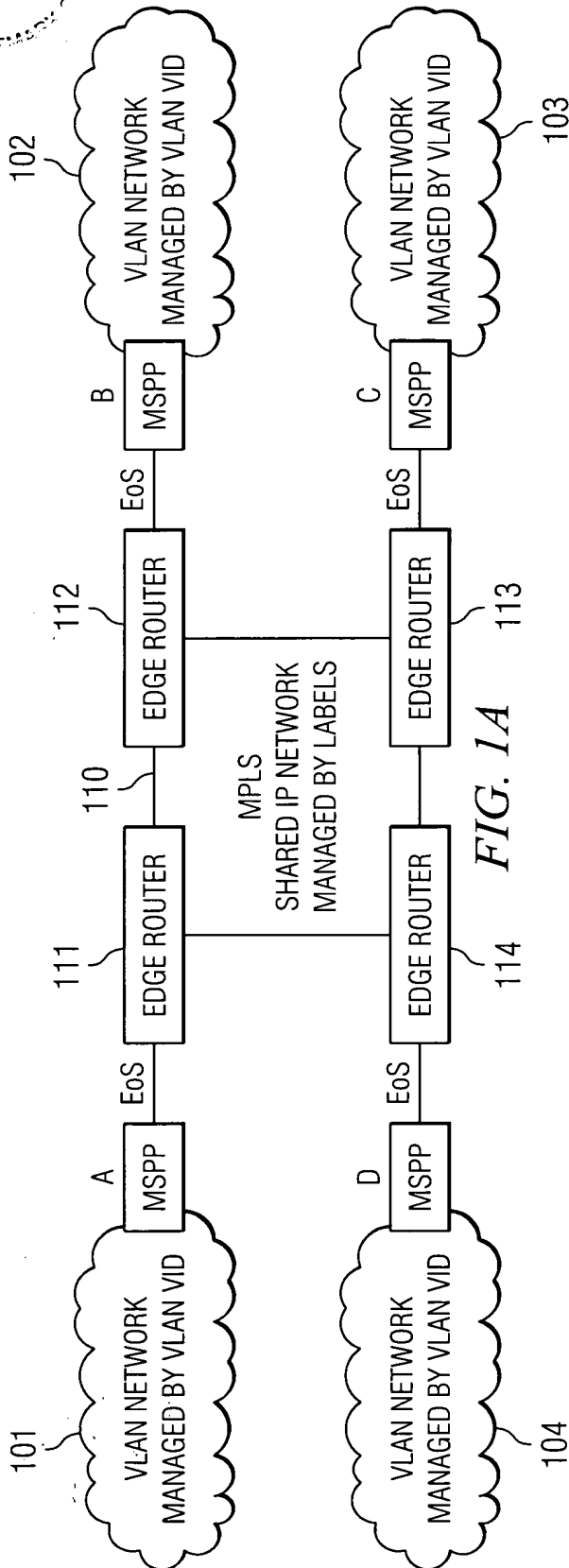
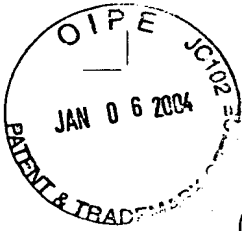


FIG. 1A

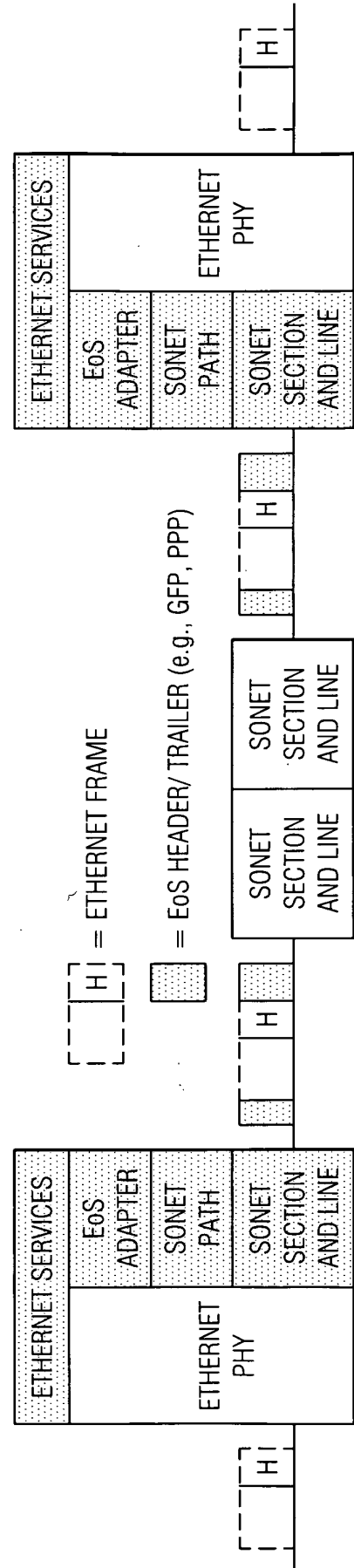
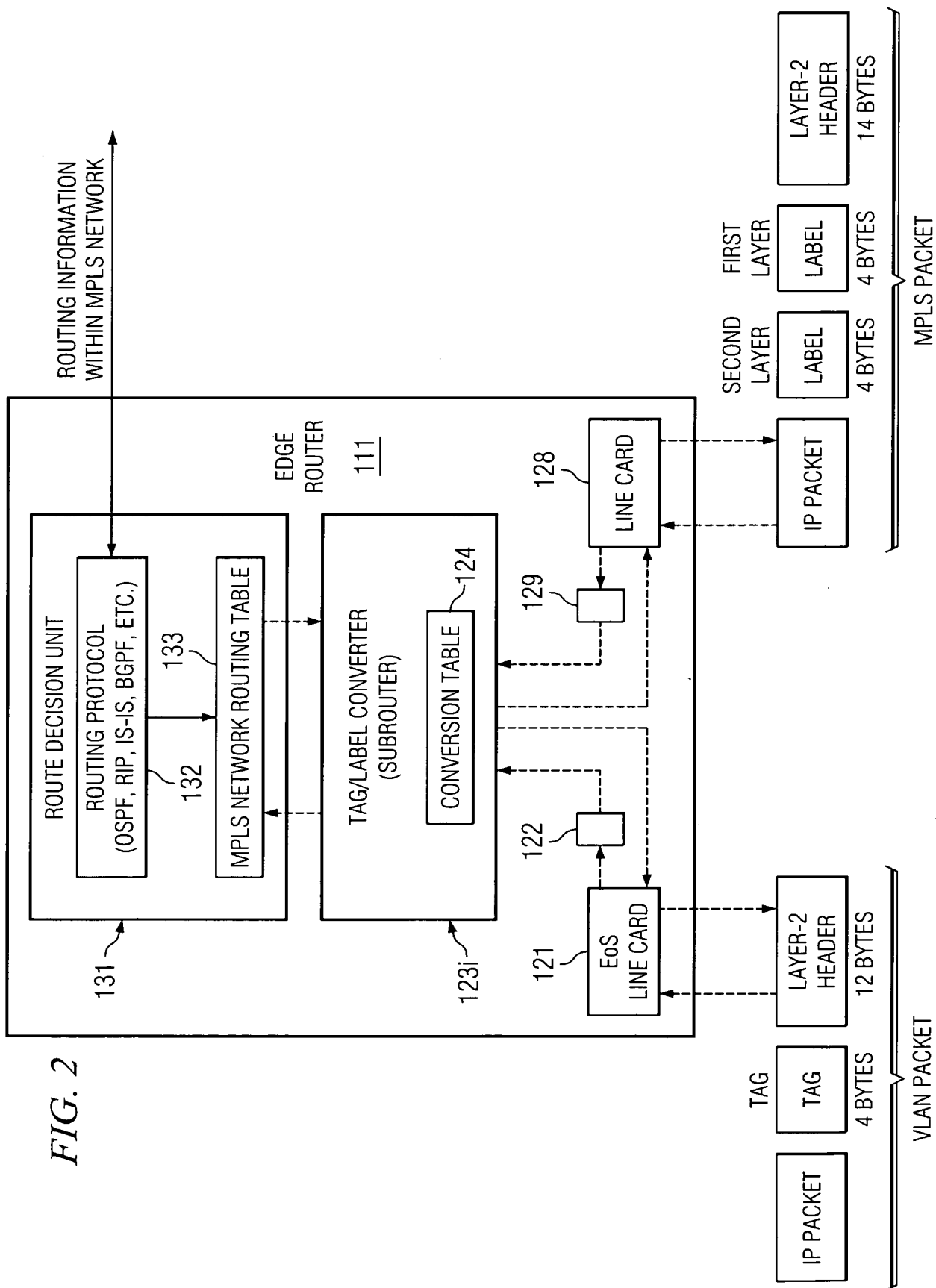


FIG. 1B

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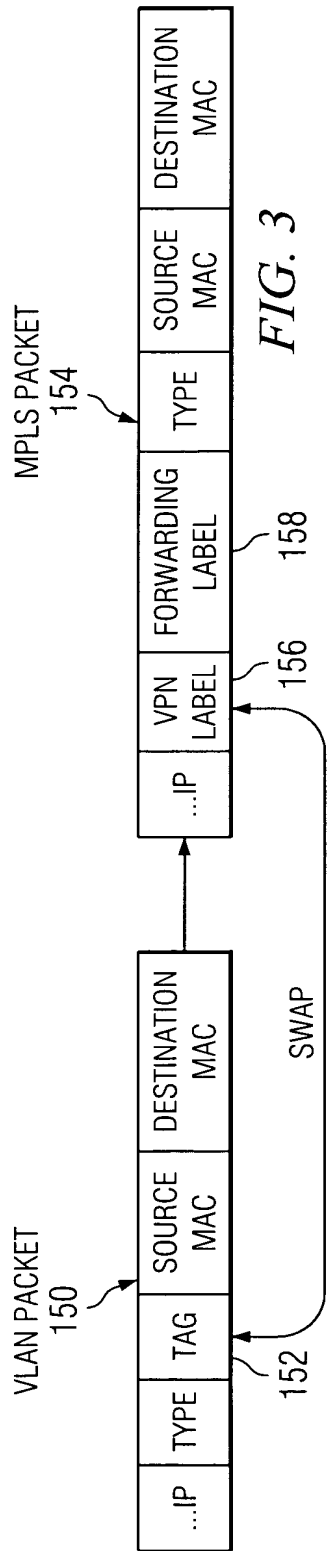


FIG. 3

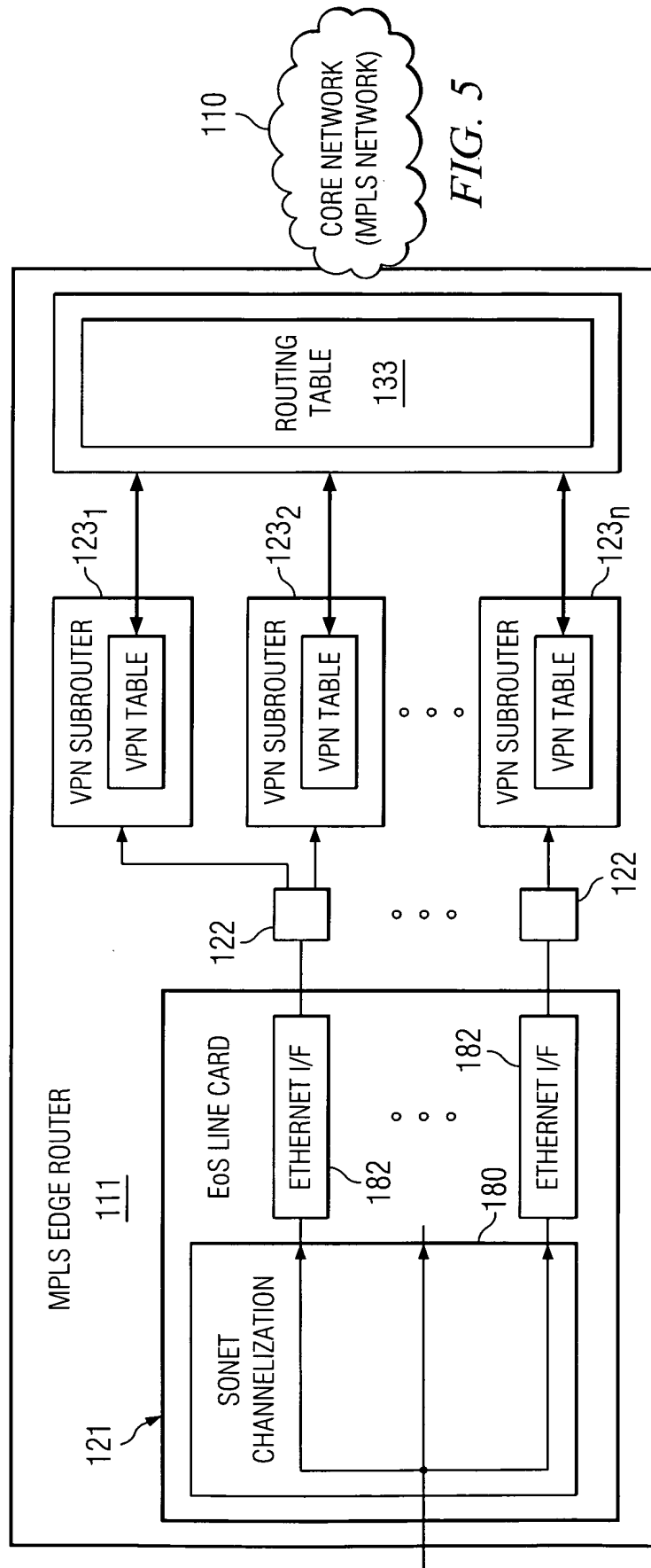
OUTGOING I/F	EoS I/F (PORT)	EoS SUB I/F (CHANNELS)
EoS 0	1	1-6
EoS 1	1	7
EoS 2	2	1
⋮	⋮	⋮
EoS N		

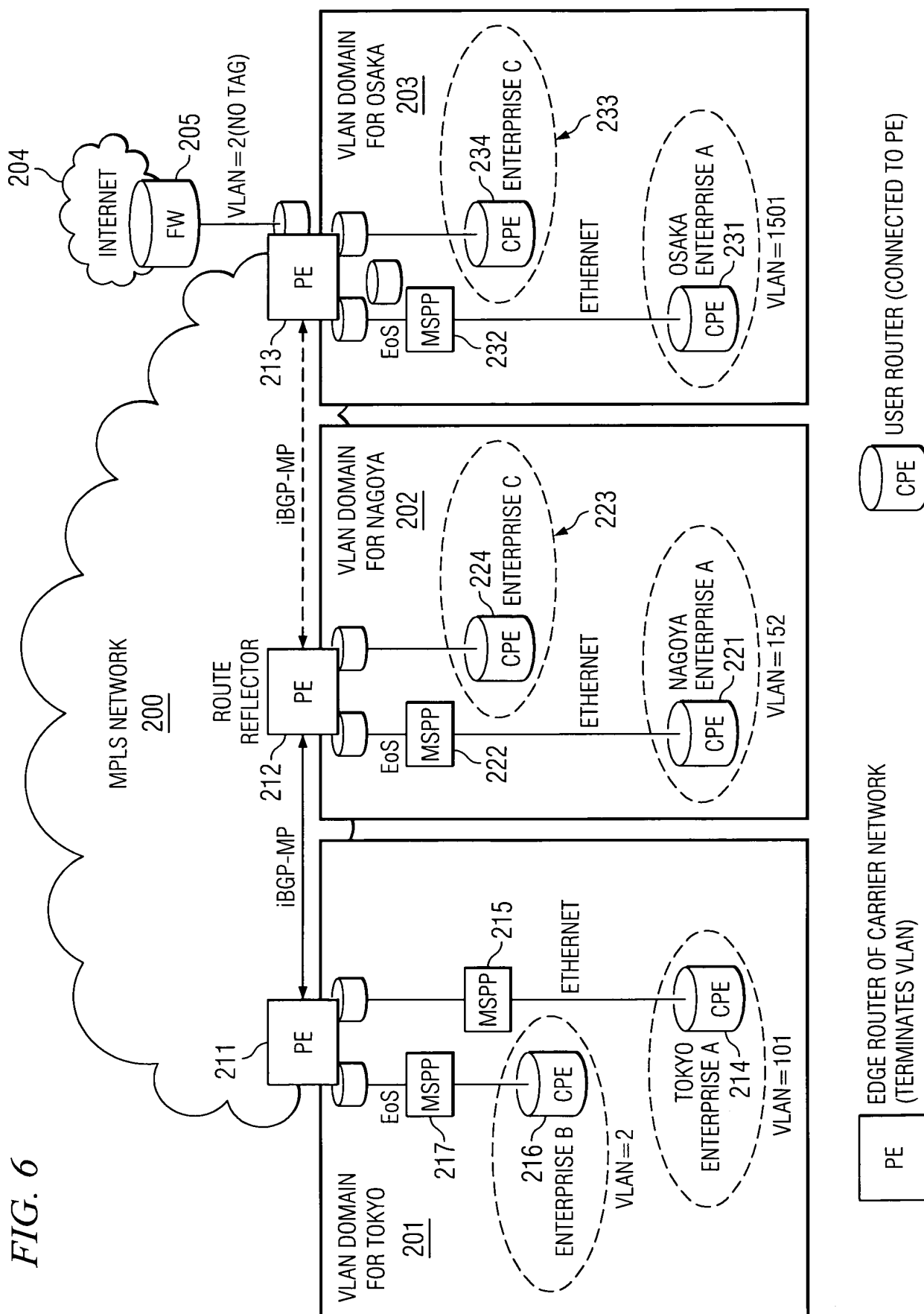
FIG. 4B

VLAN ID (VID)	VPN LABEL
N	M
N+1	M+1
⋮	⋮
N'	M'

FIG. 4A

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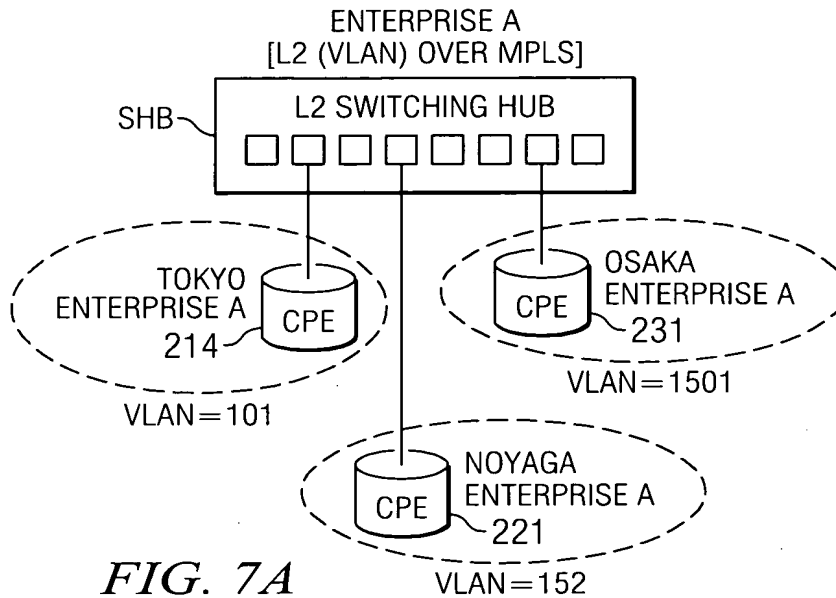


FIG. 7A

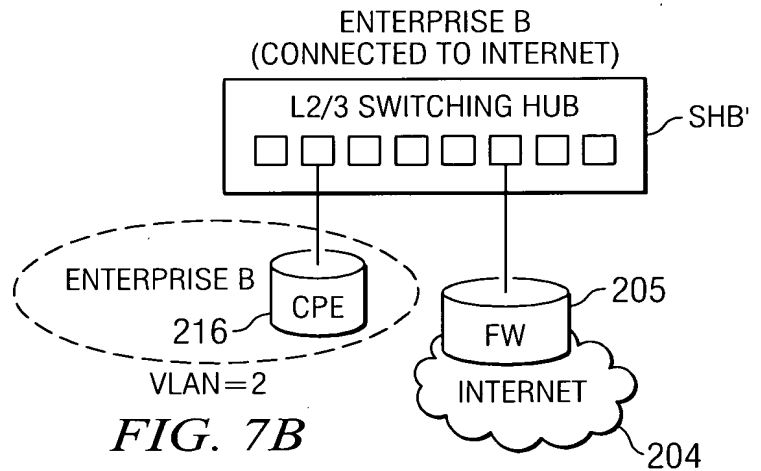


FIG. 7B

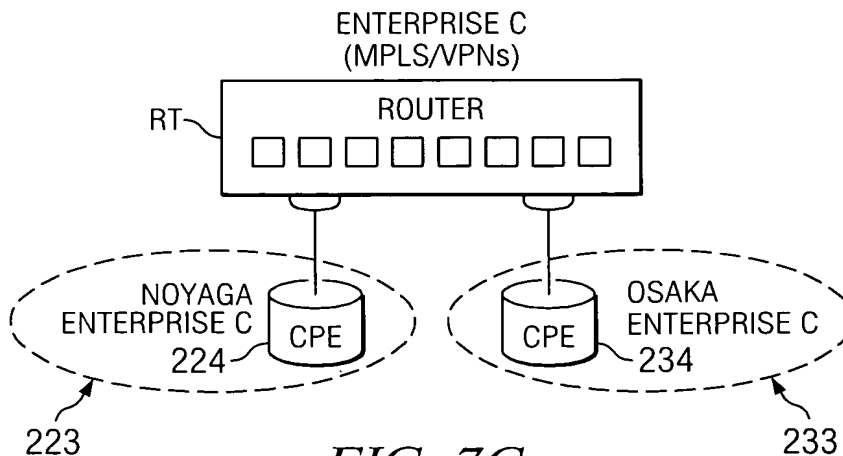
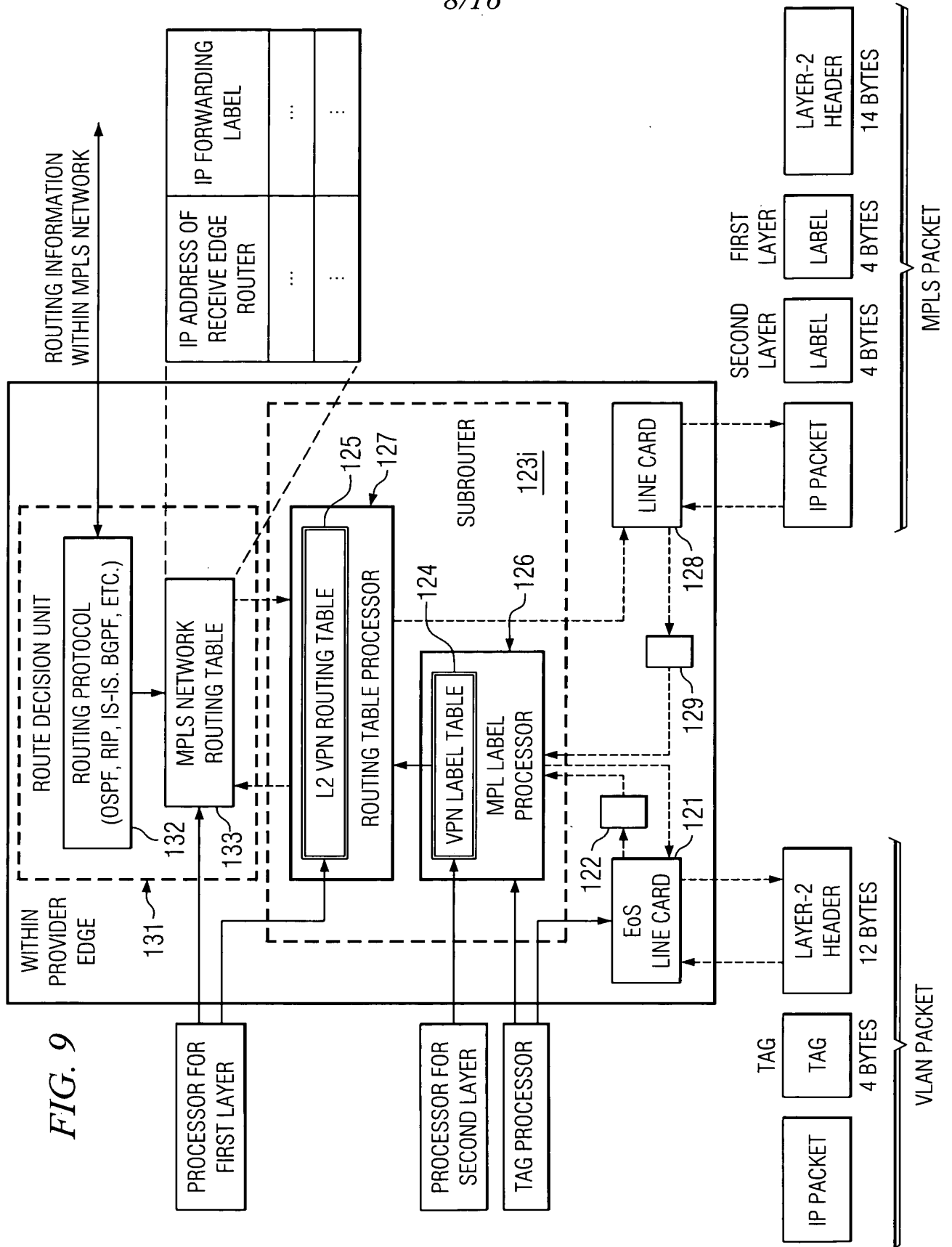


FIG. 7C



FIG. 8

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FIG. 10A

(a) L2 VPN LABEL TABLE OF PE A

PE A #VPN IDENTIFIER			LABEL TABLE OF ENTERPRISE A	
VPN LABEL	L2 ADDRESS	OUTGOING I/F	VLAN ID (VID)	VPNi
26			101	COMPANY-A

VLAN ID AND VPN IDENTIFIER ENTERED STATICALLY WHEN VPN/VLAN IS SET UP

(b) L2 VPN ROUTING TABLE OF PE A

PE A #VPN IDENTIFIER	ROUTING TABLE OF ENTERPRISE A

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FIG. 10B

(a) L2 VPN LABEL TABLE OF PE A

PE A #VPN IDENTIFIER			LABEL TABLE OF ENTERPRISE A	
VPN LABEL	L2 ADDRESS	OUTGOING I/F	VLAN ID (VID)	VPNi
26	MACA	EoS 0	101	COMPANY-A

(b) L2 VPN ROUTING TABLE OF PE A

PE A #VPN IDENTIFIER	ROUTING TABLE OF ENTERPRISE A
	LOOPBACK ADDRESS OF L2 MAC B VIA PE B; VLAN 152
	LOOPBACK ADDRESS OF L2 MAC C VIA PE C; VLAN 1501
	L2 MAC A IS DIRECTLY CONNECTED, ETHERNET0, VLAN 101

SET UP BY iBGP

DIRECT CONNECT BECAUSE CPE IS DIRECTLY CONNECTED TO OWN PE

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VPN TABLE OF ENTERPRISE A IN PE A

L2 VPN LABEL TABLE OF ENTERPRISE A					
	VPN LABEL	OUTGOING I/F	MAC	VID	VPNi
	26	EoS	MAC A	101	COMPANY A
L2 VPN ROUTING TABLE OF ENTERPRISE A					
L2	MAC B	LOOPBACK ADDRESS OF PE B; VLAN 152			
L2	MAC C	LOOPBACK ADDRESS OF PE C; VLAN 1501			
L2	MAC A	DIRECTLY CONNECTED, ETHERNET, VLAN 101			

FIG. 11A

VPN TABLE OF ENTERPRISE A IN PE B

L2 VPN LABEL TABLE OF ENTERPRISE A					
	VPN LABEL	OUTGOING I/F	MAC	VID	VPNi
	26	EoS	MAC B	152	COMPANY A
L2 VPN TABLE OF ENTERPRISE A					
L2	MAC B	DIRECTLY CONNECTED, ETHERNET, VLAN 152			
L2	MAC C	LOOPBACK ADDRESS OF PE C; VLAN 1501			
L2	MAC A	LOOPBACK ADDRESS OF PE A; VLAN 101			

FIG. 11B

VPN TABLE OF ENTERPRISE A IN PE C

L2 VPN LABEL TABLE OF ENTERPRISE A					
	VPN LABEL	OUTGOING I/F	MAC	VID	VPNi
	26	EoS	MAC C	1501	COMPANY A
L2 VPN LABEL TABLE OF ENTERPRISE A					
L2	MAC B	LOOPBACK ADDRESS OF PE B; VLAN 152			
L2	MAC C	DIRECTLY CONNECTED, ETHERNET, VLAN 1501			
L2	MAC A	LOOPBACK ADDRESS OF PE A; VLAN 101			

FIG. 11C

VIRTUAL PRIVATE NETWORK (VPN) WITH CHANNELIZED ETHERNET OVER SONET (EoS) INTERFACE AND METHOD

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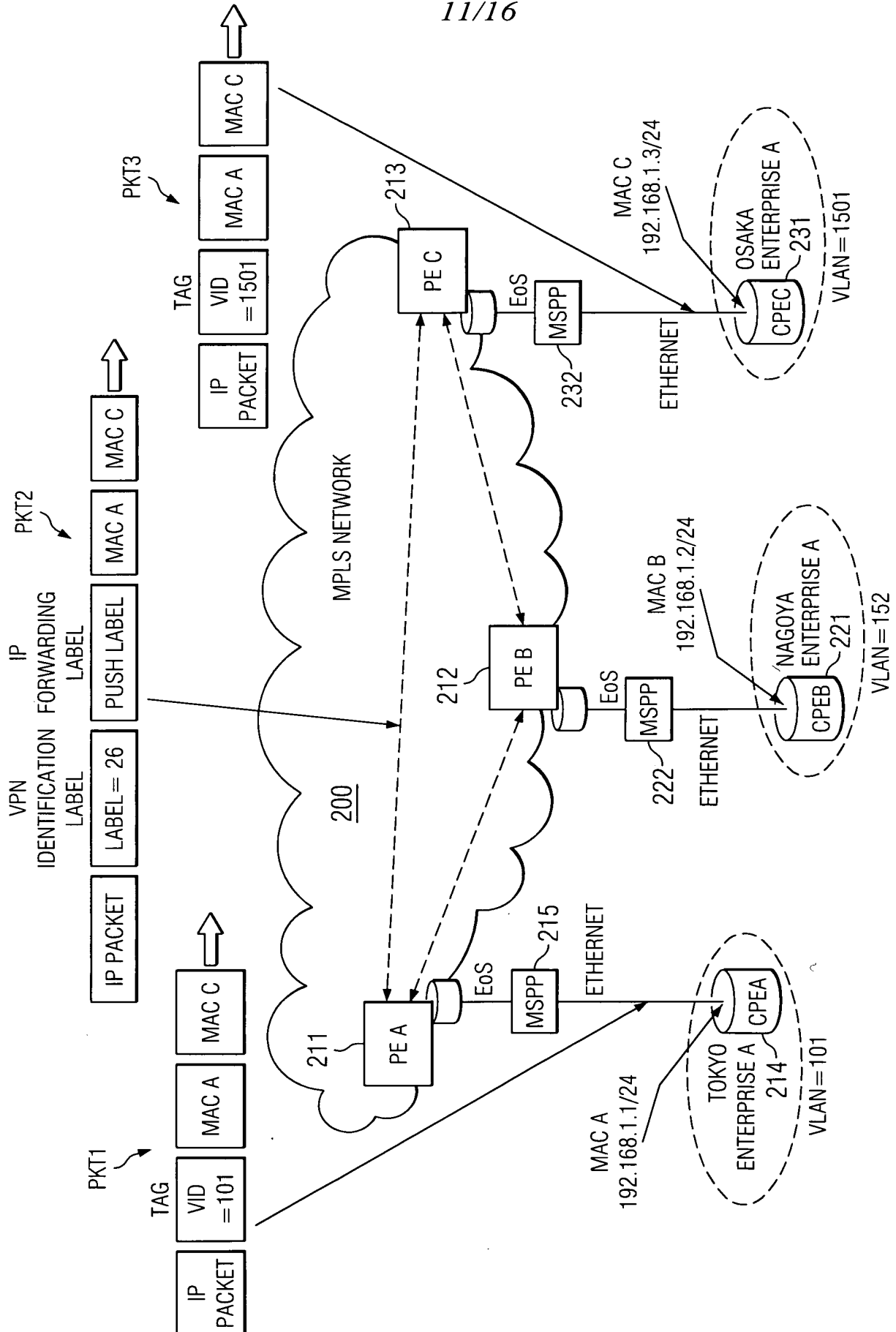


FIG. 12

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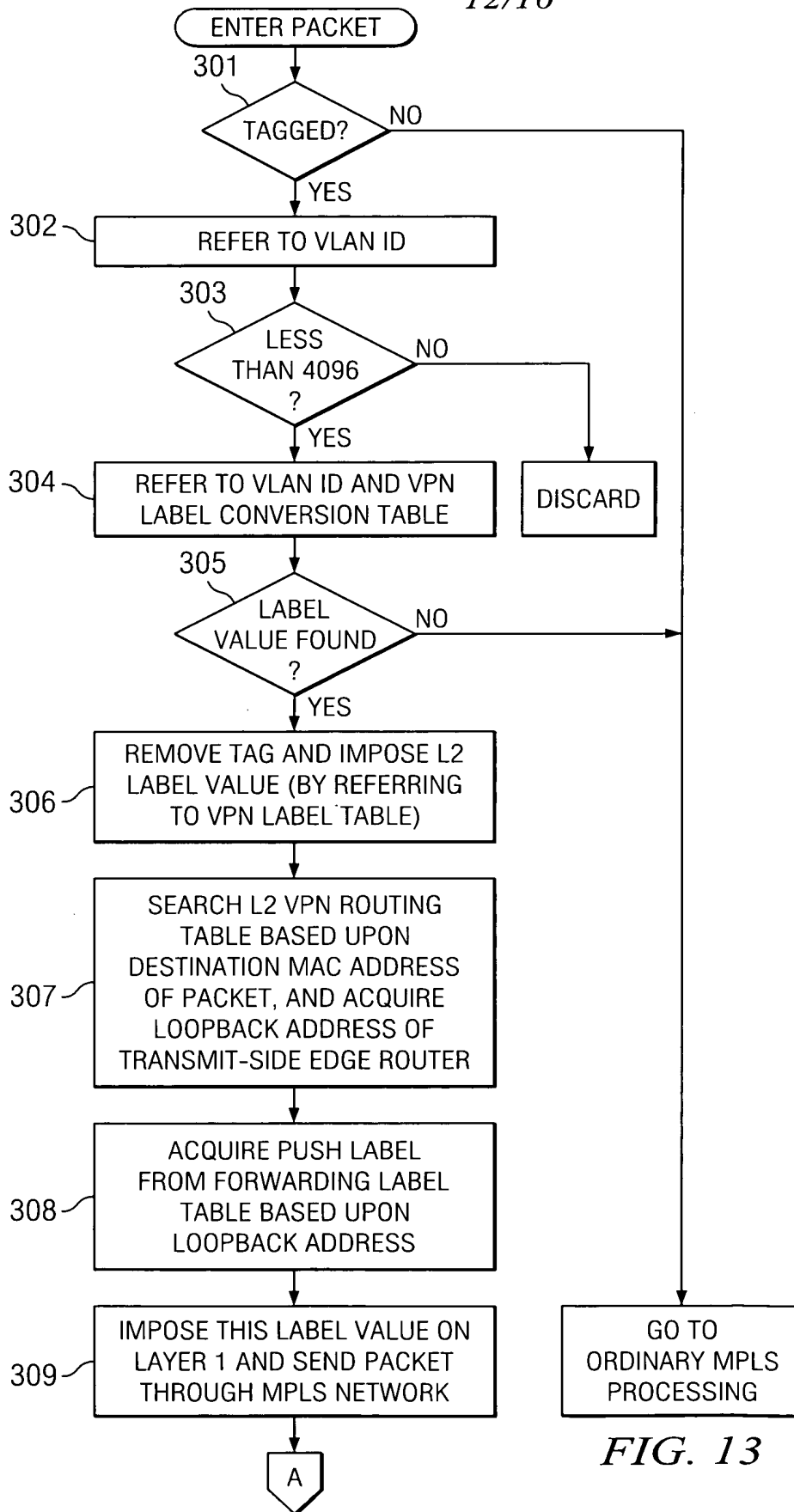


FIG. 13

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FROM
FIG. 13

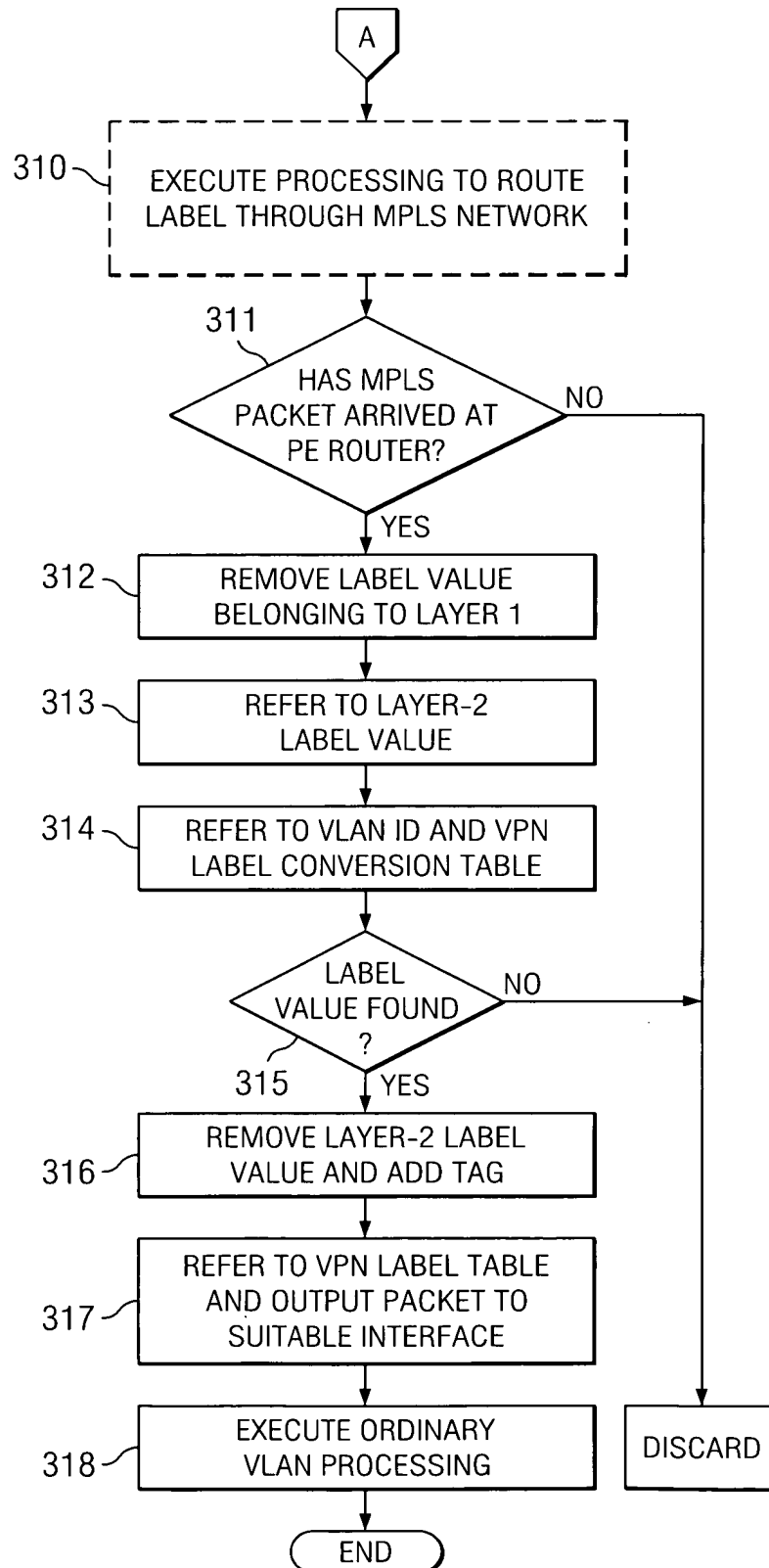


FIG. 14

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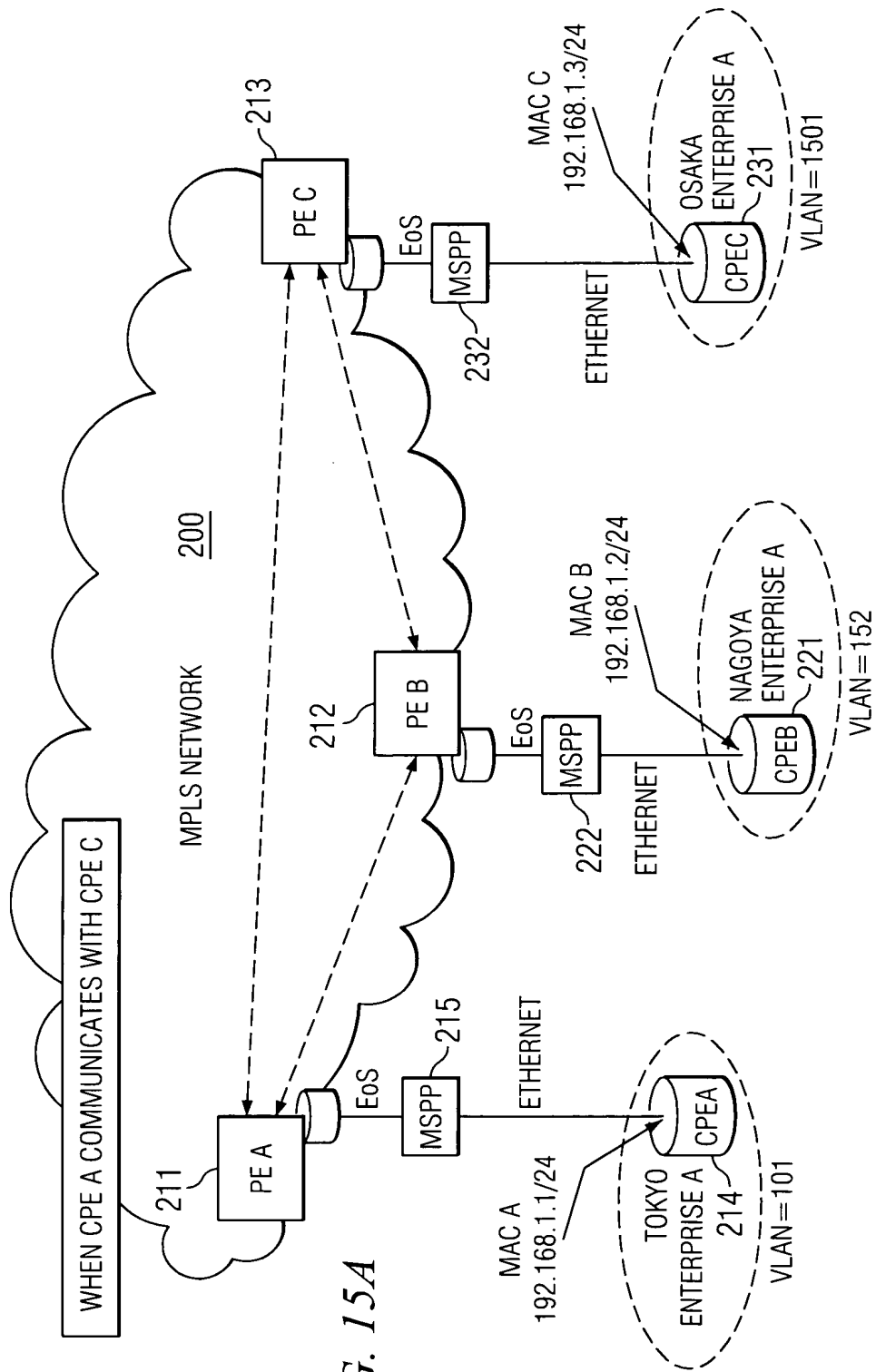


FIG. 15A

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1.	BROADCAST ARP PACKET DIRECTED TO CPE C (192.168.1.3) FROM CPE A
2.	IN CASE OF BROADCAST DIRECTED TO CPE C (192.168.1.3) FROM CPE A, CREATE COPY OF BROADCAST PACKET AT PE A AS NECESSARY AND SEND PACKET TO PE B, PE C
3.	SEND ARP-REPLY PACKET TO CPE A (192.168.1.1) FROM CPE C AUTOMATICALLY LEARN OR ENTER MAC ADDRESS OF EACH CPE IN L2 VPN LABEL TABLE, L2 VPN TABLE OF EACH PE

FIG. 15B

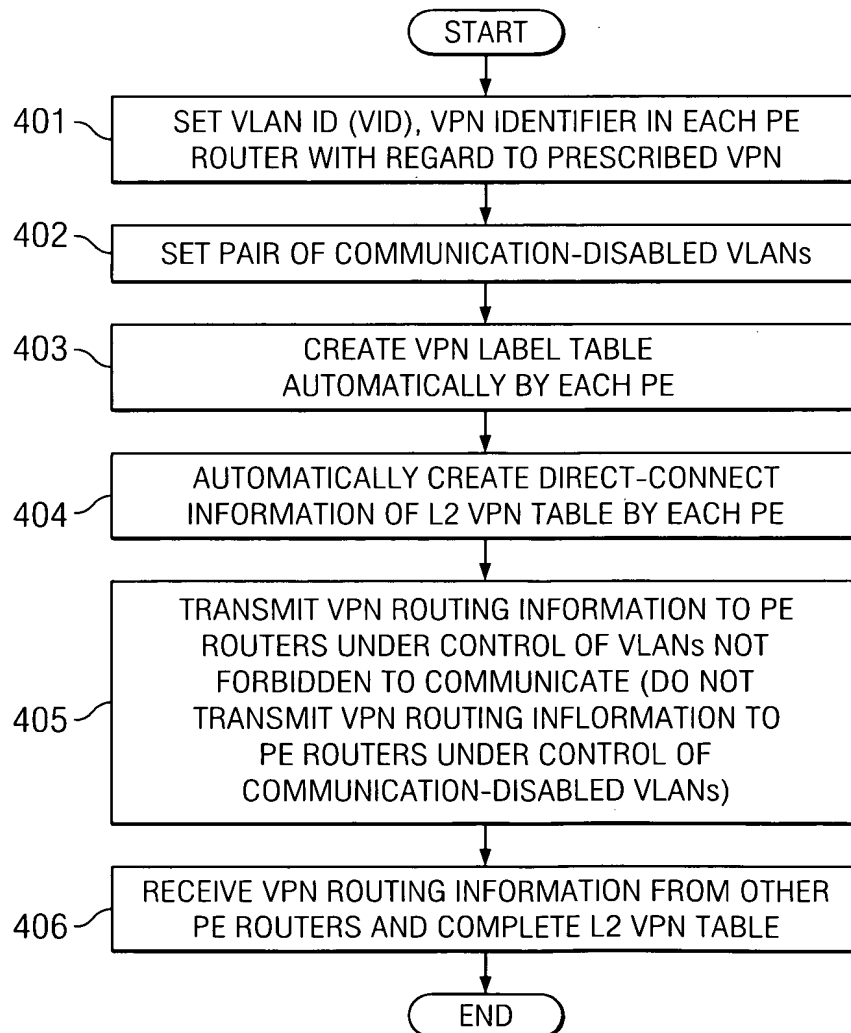


FIG. 16

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